

Exhibit N.

Expert's Report

**Bridgeport Rental and Oil Services (BROS) Site
Logan Township, New Jersey**

April 30, 1998

Prepared for

Liberty Mutual Insurance Company

Prepared by

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1.0 Introduction

SCA Associates (SCA) was retained by Liberty Mutual Insurance Company, through its counsel, Warner & Stackpole (W&S), to provide this report relating to the Bridgeport Rental and Oil Services (BROS) Superfund Site in the matter of Liberty Mutual Insurance Company v. Black & Decker Corporation (B&D), et. al., U.S.D.C., D. Mass., C. A. No. 96-10804-DPW.

SCA Principal Frank S. Anastasi reviewed and evaluated relevant information made available by W&S, the State of Maryland Department of the Environment (MDE), the New Jersey Department of Environmental Protection (NJDEP), and U. S. Environmental Protection Agency (EPA). The documents reviewed (see Appendix A) include:

Remedial Investigation/Feasibility Study Reports and Workplan Proposals, the BROS Site Record of Decision, and Fact Sheets prepared by EPA and consultants;

Transcripts of depositions and responses to interrogatories and requests for information prepared for previous and current litigation concerning the site; and

Inspection reports, permit correspondence and other documents found in files of the regulatory agencies.

Record searches were conducted by the NJDEP Hazardous Waste Regulatory Program and the New Jersey Department of Law and Public Safety's Cost Recovery Imaging System (CRIS). Maryland Department of Environment personnel also searched its records in attempted to identify any documentation of disposal of B&D Hampstead, MD facility waste at the BROS site.

The opinions reached as a result of the record searches and the review and evaluation of documents listed in Appendix A are presented in Section 3.0 of this report. These opinions are based on Mr. Anastasi's experience evaluating disposal activities and resultant environmental harm at numerous sites, including several Superfund sites in New Jersey. Appendix B provides Mr. Anastasi's professional profile.

The compensation agreed upon for the preparation of this report was \$150 per hour. Approximately 200 hours were expended in the preparation of this report.

2.0 Site Overview and History of Operations

The Bridgeport Rental and Oil Services (BROS) site is a 30-acre property located near the intersection of Routes 130 and 295 in Logan Township, New Jersey, where EPA took remedial actions from 1982 to 1996. Figure 1 is a site map.

Prior to EPA's actions, the site consisted of a tank farm and waste-oil recycling and refining operation with more than 100 tanks and process vessels, thousands of drums, several tank trucks and a 13-acre lagoon.

The depth of the lagoon apparently varied and reached a maximum depth of 21 feet. [EPA - 1]

The depths of excavation of the lagoon reportedly extended from five to thirteen feet into the underlying aquifer. [EPA - 1] [EPA - 2]

The surface of the lagoon reportedly reached as high as ten feet above the local water table historically. [EPA - 1] [EPA - 2] No engineering controls, such as a liner or leachate collection system, were ever installed at the site to contain wastes and associated contaminants or to protect underlying soil and groundwater from contaminant migration.

A variety of wastes and chemicals were stored in the tanks and in the lagoon. In vertical profile, the lagoon contents consisted of a top floating-oil layer, intermediate aqueous layer and a bottom sludge/sediment layer.

Sand and gravel mining began in the area in the 1940s. The sand and gravel pits filled with groundwater after the excavations penetrated the shallow water table. Waste materials were dumped into the BROS lagoon as early as the 1959. [ERI - 1]

The lagoon reportedly increased in size from 0.5 to 10 acres between 1940 and 1957. By 1959, liquid wastes were disposed at the site, and this activity was widespread at the site from 1960 to 1965. [ERI - 1]

During the early 1960s, the lagoon was used to store waste petroleum products. During 1971 - 1972, a former site employee stated that wastes from tanks were placed into the lagoon. He recalled a friend and site worker, David Borrelli, saying, "they [the tanks] won't fill up.... because after they get done every evening hauling in here, we open the valves on the tanks and run it into the lake....let it flow into the lagoon". [Smith - 1]

Historical aerial photographs show that wastes were disposed by spreading onto the ground. The photographs also show that spills and leaks from tanks and trucks were common. [ERI - 1] A former truck driver who delivered oil to the site recalled that in 1971 - 1972 "we were walking in oil and mud. It was already six, eight inches deep. The whole place was slushy, like a quagmire in there". [Smith - 1]

New Jersey regulatory agencies' concerns about the site were documented as early as May 1969. [Borrelli - 1]

A 1971 regulatory memorandum expressed concern about ground water pollution. [NJDEP - 1]

A 1979 regulatory memorandum expressed concern about the lagoon and other conditions posing harm to the environment. [NJDEP - 2]

Disposal activities ceased at the site in 1981, the year that EPA proposed adding the site to the NPL.

Black & Decker (B&D) allegedly was connected to the BROS site through its use of a waste hauler, A&A Waste Oil (A&A), to remove waste materials from B&D's Hampstead, Maryland facility. B&D reported that A&A removed waste from the facility between approximately 1973 and 1982. [B&D - 2]

EPA did not identify B&D as a PRP, nor is it a settling defendant in the site-related litigation Rollins v. U.S./U.S. v. Allied Signal. Record searches conducted by the NJDEP and the New Jersey Department of Law and Public Safety failed to identify any documentation that B&D waste was disposed at the BROS site. [NJDEP - 3]
[NJDLP - 1]

3.0 Opinions

Opinion 1 Although A&A Waste Oil removed wastes from Black & Decker's Hampstead, MD facility and A&A Waste Oil materials were transported to the BROS site, there is no documentation that Black & Decker's waste was actually disposed at the BROS site.

According to B&D, a log from A&A indicates that waste oil was collected at the Hampstead facility by A&A from March 1973 to September 1973.

B&D personnel recalled that in the 1970s and early 1980s A&A would remove approximately 2,000 gallons of waste oil and water mixture by pumping it from two storage tanks on an on-call basis rather than regularly scheduled pickups. [B&D - 1]

Investigations by the Maryland Waste Management Administration found that A&A had been removing wastes from the Hampstead facility since 1974. The investigation revealed that 28,000 gallons of waste were removed from the facility between February 1981 and May, 1981. [MD - 2]

A&A stated in 1988 that during the mid-1960s, waste oil collected by A&A from various sources in the Baltimore area was sold to Regal (and taken to the BROS site). Regal hauled approximately one to two 6,000-gallon loads of waste from A&A per week during this time, but documentation of this was not available due to a 1979 fire that destroyed all records pertaining to these shipments. [A&A - 1]

Former employees stated that A&A was a supplier of waste oil to Regal [Hartung- 2], [Chamberlain - 1], [Goldstein - 1]

A&A removed a 4,000-gallon load of waste oil from the B&D facility on July 13, 1982. This material was observed being discharged onto dirt roads at the Delight Quarry in Baltimore County, MD later that day. [MD - 1]

File reviews of MDE, NJDEP and US EPA failed to identify a single document indicating that material removed from the Hampstead facility was transported to the BROS site. The NJDEP Hazardous Waste Regulatory Program searched all waste manifest records and found no evidence of B&D waste disposal at BROS. [NJDEP - 3]

The New Jersey Department of Law and Public Safety Cost Recovery Imaging System search found no evidence of B&D waste disposal at BROS. [NJDLPS - 1]

A search conducted by the Maryland Department of Environment found no evidence of B&D waste disposal at BROS. [MD - 4]

Former Regal and BROS employees did not identify Black & Decker or the Hampstead facility as a known source of wastes delivered to the site, nor did they recall having ever

removed waste from the facility. [De Cola - 1]; [Phelps - 1]; [Rascona - 1]; [Reis - 1]; [Smith - 1]; [Spritzka - 1] [Borelli - 1] [Segal - 1]

A&A supposedly placed waste removed from the Hampstead facility in a holding tank at its Baltimore facility that also contained wastes from other sources. Contents of the holding tank reportedly were removed by others and transported to disposal facilities [A&A - 1]. However, A&A was observed unlawfully discharging wastes removed from the Hampstead facility within hours of its removal at a quarry in Baltimore County, MD. [MD - 1]

A June 18, 1982 letter from A&A to B&D stated that waste oil removed from the Hampstead facility was disposed at Oil Recovery, Inc., Clayton, NJ. [A&A - 2]

Reportedly, A&A waste materials were disposed at the Berks Associates/Douglass Superfund site in Douglassville, PA from 1968 through 1972 and in 1974. Additional facilities that reportedly received A&A wastes include American Recovery, Baltimore, MD; Baumgardner Paving, Fayetteville, PA; Petrocon, Valley Forge, PA; and dirt roads in the Baltimore, MD area. [B&D - 2; B&D - 4]

A&A routinely sprayed waste oil on dirt roads in the Baltimore area. The Maryland Waste Management Administration found that A&A discharged waste materials on dirt roads at the following facilities: Maryland Slag Company, Sparrows point, MD on June 1, 1982; Arundel Corporation Greenspring Quarry, Baltimore, MD on July 12, 1982; Arundel Corporation Delight Quarry, Baltimore County, MD on July 13, 1982; and Brooklyn Terminal, Baltimore, MD on July 21, 1982. [MD-1]

Opinion 2 Activities at the BROS Site caused harm to the environment.

The BROS lagoon and tank farm have been remediated by EPA. Residual waste materials remain beneath the former lagoon area. The nature and extent of contaminants still present in soil, sediment and groundwater has not been fully defined.

NUS Corporation performed a Phase 1 Remedial Investigation and Feasibility Study (RI/FS) for EPA in 1983 and 1984. The RI/FS report (dated July 1984) states that in addition to the lagoon and tank contents, on-site and off-site soil, sediment, and groundwater were contaminated with PCBs, volatile and semi-volatile organic compounds (VOCs and SVOCs), and metals. At that time, contaminated groundwater was believed by EPA to have migrated at least 1,500 feet but less than 6,000 feet down gradient from the site to the southeast. [EPA - 2]

The PRP's consultant has developed a Phase 2 Workplan to define residual contamination. Once defined, a remedial plan will be developed to address remaining contamination. This will address both on-site areas (i.e., the former tank farm and former lagoon areas) and off-site areas (i.e., adjacent wetlands in Little Timber Creek Swamp to the east and in Cedar Swamp to the north). At the time of this writing, EPA has not approved the PRP's Phase 2 Workplan.

Opinion 3. Activities at the BROS site caused harm to the environment gradually and in a protracted manner. The harm likely began in 1959 when liquid wastes were first disposed on-site, and probably continued until activities ceased in 1981.

Analysis of historical aerial photographs of the site taken from 1959 to 1980 found that liquid waste disposal began at the site in 1959. Disposal of the liquids was evident throughout the north central portion of the site. Dark liquids were observed in pits, and dark stained soil was evident around the site. [ERI -1]

Waste oils were placed in the lagoon throughout the 1960s, rendering it essentially full prior to any known or documented removal of B&D wastes by A&A. Because the lagoon initially had no liner, wastes and contaminants in lagoon liquids seeped into the underlying soil and ground water immediately upon disposal into the lagoon. Therefore, soil and ground water contamination likely reached peak levels during the site operations by Regal Petroleum.

Activities other than storing oil in the lagoon during the time Regal Petroleum operated the site (prior to 1965) contributed to contaminant releases at the site. According to former employees, acidic sludges that were byproducts of Regal Petroleum's re-refining operations were disposed in the lagoon. Spent filter clays and oily clay residuals from the re-refining operations were disposed into the lagoon also. Furthermore, suspended sediment and asphaltic materials would settle out of the petroleum products as sunlight and precipitation interacted with the upper layer of liquids within the lagoon. These actions apparently formed a layer of sludge along the bottom of the lagoon. [Hartung - 1]
[Hartung - 2]

Opinion 4. Contaminants were introduced into the environment from releases of waste materials at the site. Releases include spills and leaks from tanks and trucks, seepage from the lagoon and disposal directly onto the ground surface. These releases occurred routinely throughout the history of site operations.

From 1959 on, historical aerial photographs show that stained soil, pools of liquids, and solid waste (drums and debris) disposal was widespread across the site. Leaks, spills and pooled liquids were seen at tank areas, the lagoon, bermed areas and in channels leading to the lagoon and off-site. The adjacent woodland, first observed containing dark liquid and exhibiting dead trees in 1970, continued to be impacted by site releases until 1980. Trucks were observed discharging liquids onto the ground, into channels that led to the lagoon, and into bermed areas and into the lagoon throughout this time period. [ERI - 1]

Testimony from site employees' states that tanks leaked routinely, and routine spills occurred when trucks would unload wastes into the lagoon and/or into pits and tanks. The following descriptions of the overall conditions observed at the site on a continual basis have been offered.

A former Regal employee who worked at the site from about 1960 to 1962 recalled a spill of approximately 500 to 60 gallons of acid from a truck. The former employee described the general condition of the property as "filthy, disgusting, stinks... tanks were old, welded together and leaked... oil at the welded seems... was running down... oozing out". [Reis - 1]

Another former employee recalled dumping the contents of drums obtained from a chemical company onto the ground. [Segal - 1].

Testimony from site employees states that trucks dumped waste directly into the lagoon, onto the ground and into pits and tanks, which later were emptied into the lagoon. [Segal - 1], [Reis - 1], [Spritza - 1] [Phelps - 1]

The surface area of the facility exhibited oil saturated water pools, according to an inspection in November, 1967 [NJAPC - 1]

Opinion 5. Activities at the site resulted in widespread contamination both on-site and off-site.

Malcolm Pirnie, Inc. and CH2M Hill (MP/CH2) prepared a March 1996 report for EPA that characterized the nature and extent of contamination by summarizing all RI investigation work performed up to that time. The nature and extent of contamination based on data available at that time was summarized as follows. [EPA - 3]

Groundwater

- A contaminant plume extended 1,000 feet north of the lagoon in the Surficial/Upper zone of the Potomac/Raritan/Magothy (PRM) aquifer. Contaminants included petroleum hydrocarbons (BTEX); chlorinated hydrocarbons (trichloroethene, tetrachloroethane and related compounds); SVOCs; and lead.
- A contaminant plume in the Upper Middle PRM aquifer extended to the southeast at least 1,500 feet downgradient from the site boundary. Contaminants included VOCs (BTEX compounds, TCE, PCE, vinyl chloride) and SVOCs.

Surface Water

- Surface water contamination was found in the adjacent Gaventa Pond below an oil boom, originating from a seep at the base of the lagoon dike between the lagoon and the pond. Contaminants included PCBs, VOCs, SVOCs and lead. No contaminants were found in the other adjacent pond (Swindell Pond).
- Surface water in the adjacent Little Timber Creek contained elevated concentrations of VOCs, SVOCs, PCBs and lead.

Sediments

- Sediment in Gaventa pond was found to contain the same contaminants as the surface water sample at that location.
- Sediment in the Little Timber Creek wetlands east of the BROS site contained elevated concentrations of VOCs, SVOCs, PCBs and lead.

Residual Contaminant Source

- Although contaminated sediments were removed from the base of the lagoon when it was remediated, residual wastes may be present beneath the depth of excavation and in contact with ground water.
- The residual material may be present as a Dense Non-aqueous Phase Liquid (DNAPL) that is continuing to release contaminants into the ground water. It is widely recognized that that presence of DNAPL complicates ground water remediation.

Opinion 6. Remediation activities performed to date addressed the majority of waste materials formerly present in the lagoon and the tank farm area. Additional remedial activities will be required to address residual contaminants in on-site and off-site soil, sediments and groundwater.

EPA spent approximately \$175 million to date remediating the former lagoon area and approximately \$8.5 million remediating the former tank farm areas. The lagoon contents (190,000,000 gallons of water and 2,500,000 gallons of oil) were removed, incinerated on-site and the residual ash backfilled into the excavation and covered with a cap. The tanks were drained, their contents treated and/or disposed off-site, and the tanks were demolished. EPA estimate that an additional \$100 million will be required for ground water, surficial soil and wetlands remediation.

Roux Associates evaluated the nature and extent of residual contamination at the BROS site based on all site data available as of 1996. Roux's interpretations of the extent of ground water contamination in the Upper Middle aquifer and lead and petroleum hydrocarbon soil/sediment contamination appear in Figures 2, 3 and 4, respectively. [Roux - 1]

Roux's preliminary conceptual approach to addressing these areas of contamination appears in Figure 5. This approach generally consists of the following. [Roux - 1]

- Passive removal, and limited in-situ stabilization if appropriate, of lagoon and tank-farm residuals
- Limited removal of on-site surficial contaminant "hot-spots" and covers to prevent contact with and dispersion of remaining soil contaminants
- Limited removal of off-site surficial contaminant "hot-spots", if warranted, from adjacent wetlands and enhancement of ecosystems to improve the wetlands
- Demonstration that active ground water restoration techniques, such as pump-and-treat, would be technically impracticable and that intrinsic remediation (i.e., natural restoration) is adequate based on site-specific monitoring and other considerations.

This preliminary conceptual remedial plan will be refined based on the findings of the Phase 2 RI/FS and regulatory preferences to develop an acceptable remedial action plan. At the time of this writing, too much uncertainty exists to make a reliable estimation of the remedial actions that ultimately will take place.

Opinion 7 It is likely that Black & Decker disposed of known pollutants (i.e., hazardous waste solvents) in the waste oil that was removed by A&A. Black & Decker's documented mismanagement of known pollutants in 1984 suggests that it probably mismanaged hazardous wastes in the same or a similar manner before then when A&A transported wastes to BROS.

A handwritten list of notes states that all loads from B&D should be labeled as only waste oil and water [A&A - 3]

B&D stated that the material removed from the Hampstead facility by A&A consisted of cutting and lubrication oils used in the metal cutting process and to lubricate machinery. [B&D - 1]

B&D stated that the material removed from the Hampstead facility by A&A was a waste oil and water mixture of water, water soluble cutting and lubricating oils, residues from cutting machine sumps, and solvents used for degreasing and general cleaning. [B&D - 2]

The Maryland Department of Health documented in 1978 that the Hampstead facility had two 2,000-gallon tanks used for storage of solvent wastes which were removed by A&A. [MD - 5]

In a July 13, 1982 incident, A&A was observed discharging B&D waste to the dirt roads at the Delight Quarry. Analyses performed on samples of the waste discharged by A&A that had been removed from the Hampstead facility showed the presence of the following hazardous compounds: trichloroethene; acetone; methyl ethyl ketone; 1,1,1-trichloroethane; and carbon tetrachloride. Analyses performed on samples collected from the Hampstead facility waste oil storage tanks on July 16, 1982 showed the presence of the following hazardous compounds: trichloroethene; acetone; methyl ethyl ketone; 1,1,1-trichloroethane; carbon tetrachloride; toluene; ethylbenzene; and total xylenes. [MD - 1; MD - 3]

A site assessment of waste handling issues at the Hampstead facility documented in 1984 that managers were not trained as required and apparently were not familiar with requirements for proper hazardous waste management. The assessment found that water soluble cutting oil, a non-hazardous waste, was being mixed with cleaning fluids which were a hazardous waste; and that mineral spirits and kerosene were being mixed with 1,1,1-trichloroethane. [B&D - 3]

Opinion 8 If Black & Decker wastes were disposed at BROS, the contribution of the Black & Decker wastes to the overall BROS site contamination is relatively insignificant.

EPA and the Department of Justice have agreed that approximately 80% of the cost of remediating the BROS site (approximately \$300 million) is the responsibility of government agencies. This determination was based on the volume of wastes sent to BROS that originated from government agencies. Therefore, the current estimate of cleanup costs allocated to non-government PRPs is approximately \$60 million.

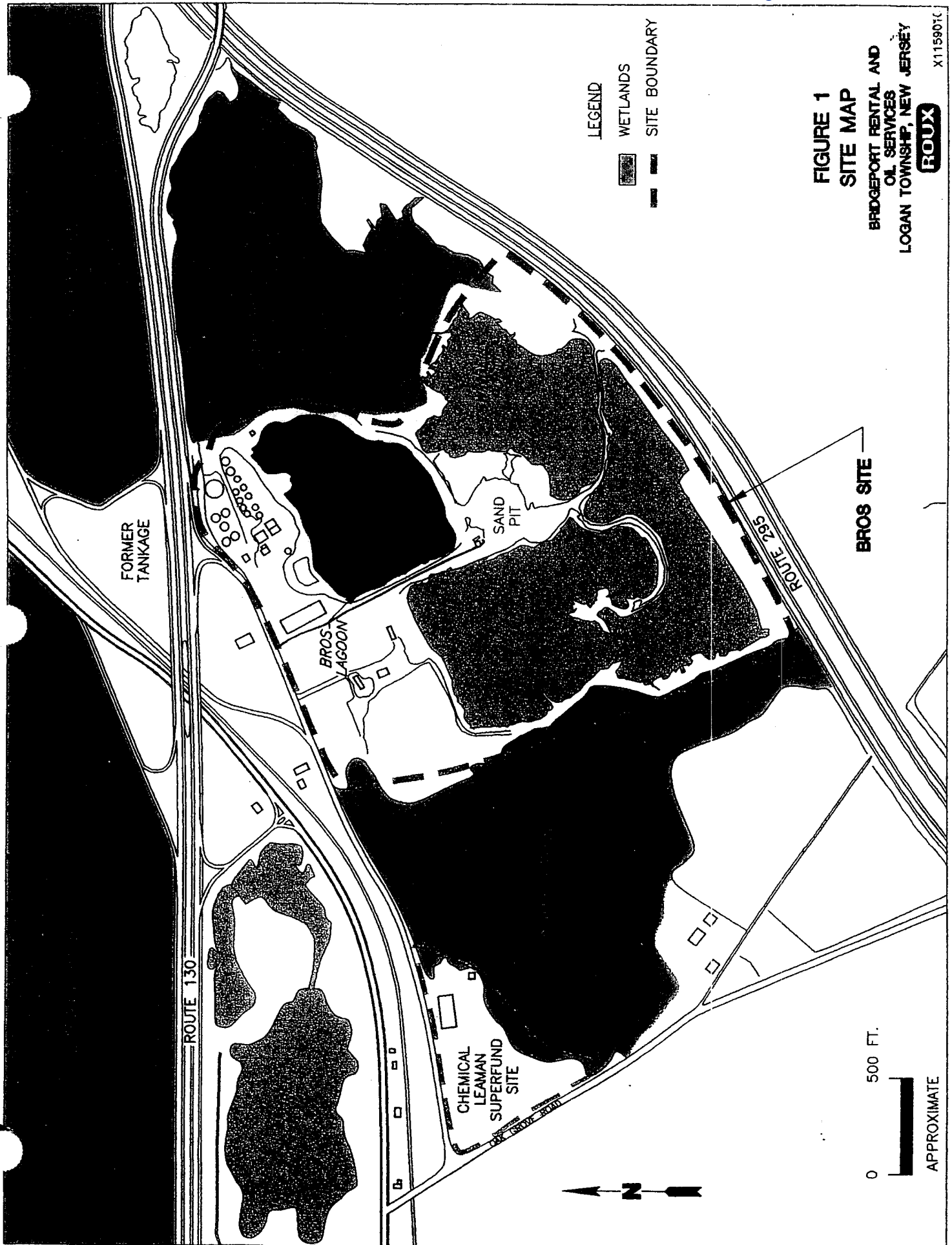
Many of the non-government PRPs are chemical or industrial organizations known to have stored large volumes of wastes in tanks at BROS, and/or generators known to have disposed of relatively large volumes of waste at the BROS site compared to B&D. The BROS site Settlement Process Committee alleged that 136,012 gallons of B&D waste was disposed at BROS, however the basis for this allegation was not disclosed.

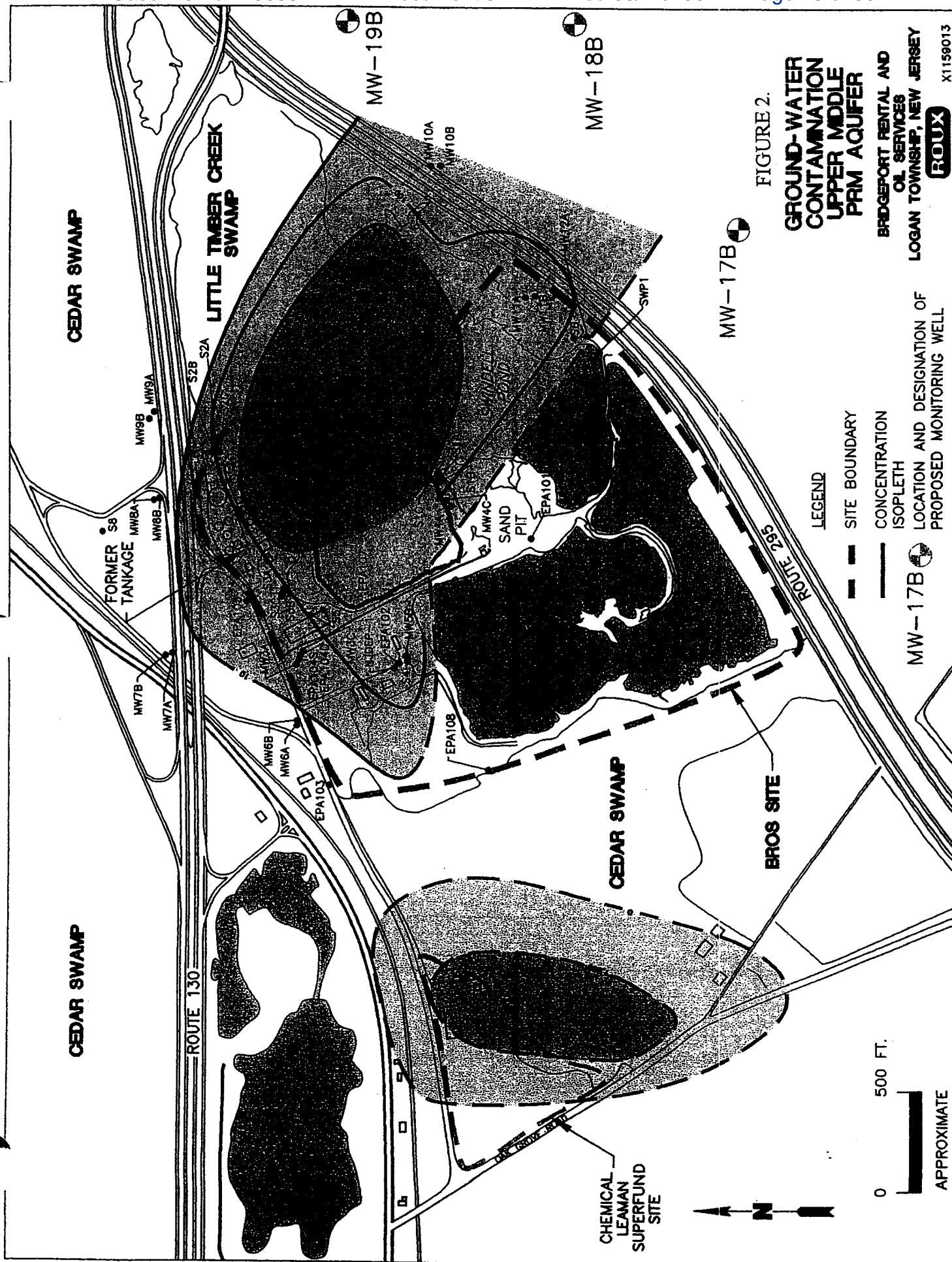
If one assumed that B&D waste was actually disposed at BROS, it is reasonable to expect that the percentage of B&D waste is very small relative to all other non-government PRP waste. Therefore, B&D's responsibility for cleanup costs at BROS would be expected to be de minimus.

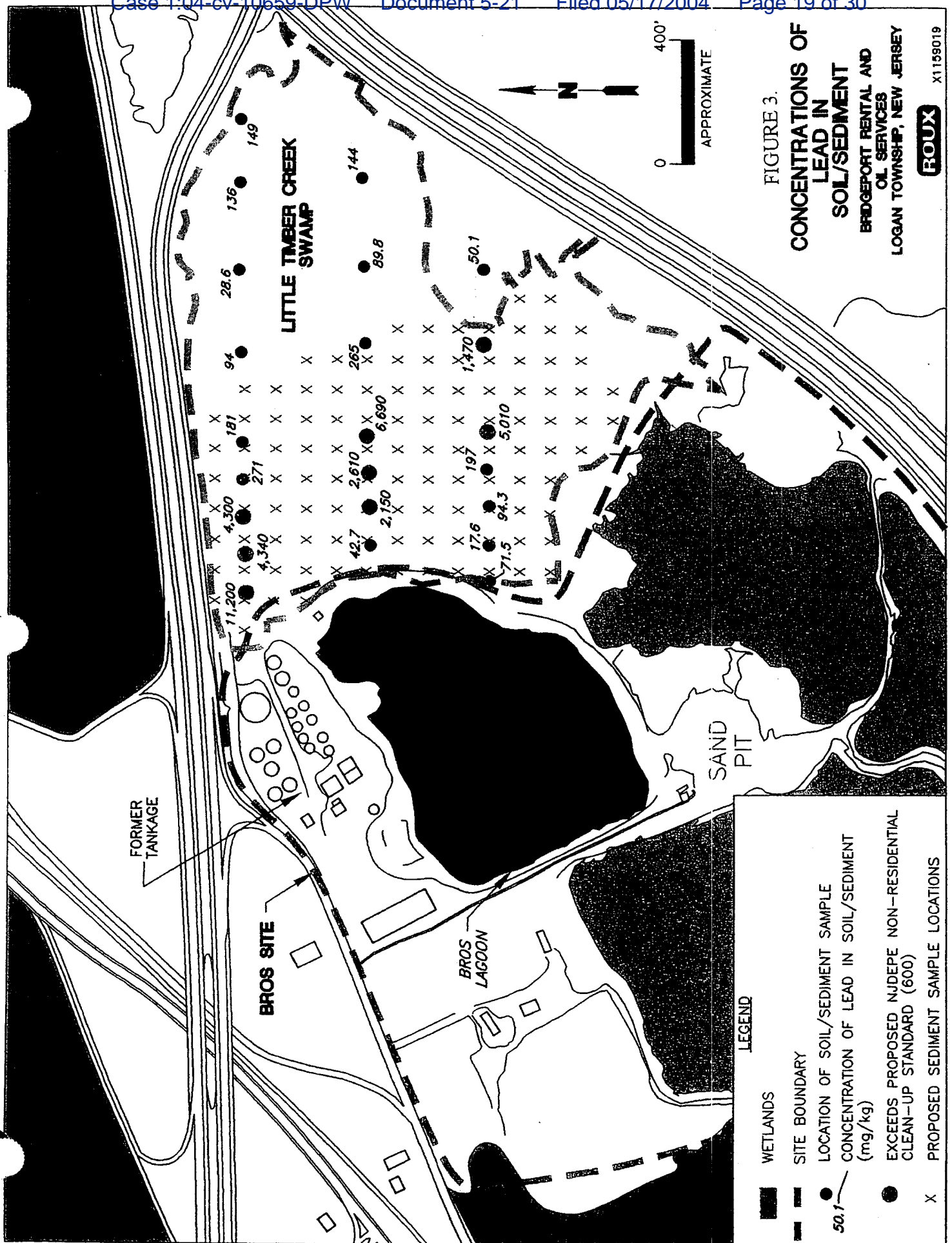
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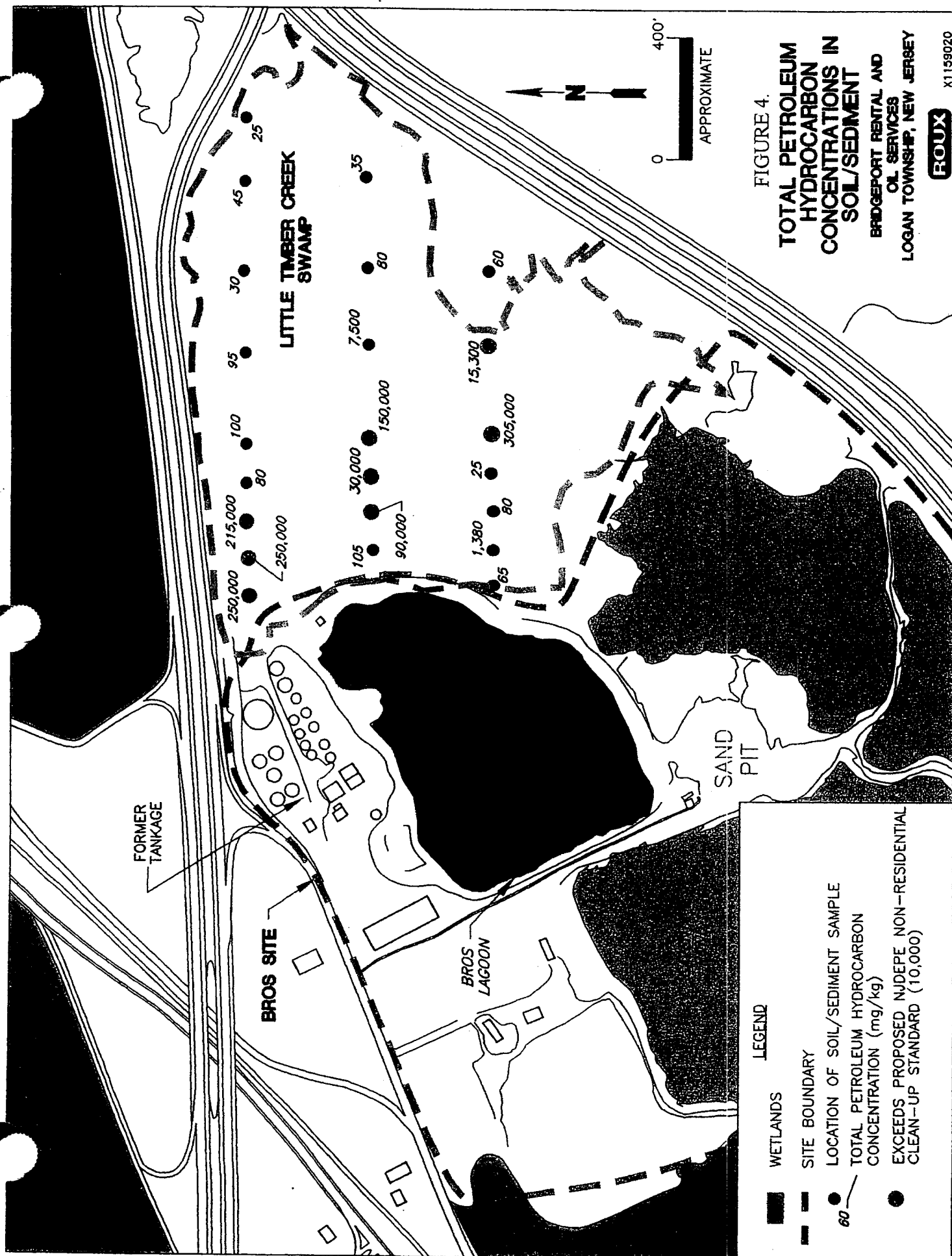
Frank S. Anastasi, PG

Date









AOC 1 ASH IN FORMER LAGOON

- NO FURTHER ACTION
 - MONITORING ONLY TO ENSURE NO IMPACT ON GROUND WATER

AOC 2 RESIDUAL LAGOON PRODUCT (EXTENDS UNDER ASH IN FORMER LAGOON)

- PASSIVE REMOVAL OF RECOVERABLE FREE PRODUCT (RECOVERY TRENCH OR PASSIVE WELLS)
- LIMITED IN-SITU STABILIZATION, IF APPROPRIATE
 - RESIDUAL (NON-RECOVERABLE) PRODUCT CONTAMINATION NOT SIGNIFICANTLY IMPACTING UPPER MIDDLE PRM GROUND WATER
 - REMOVAL OF PRODUCT RESIDUES BENEATH LAGOON NOT PRACTICABLE (EPA TRIED AND FAILED)
 - HYDRAULIC CONTROL NOT NECESSARY DUE TO HIGH VISCOSITY OF PRODUCT
 - DISSOLVED PRODUCT CONSTITUENTS IN SHALLOW GROUND WATER HYDRAULICALLY CONTAINED AND NATURALLY ATTENUATED BY SURROUNDING WETLANDS

AOC 3 FORMER TANK FARM AND PROCESS AREA

- PERMEABLE COVER TO PREVENT CONTACT TO IMPACTED SOIL, AND PREVENT SURFACE TRANSPORT TO WETLANDS
- LIMITED HOT-SPOT REMOVAL, IF WARRANTED
 - PASSIVE REMOVAL OF RECOVERABLE FREE PRODUCT
 - RESIDUAL (NON-RECOVERABLE) PRODUCT CONTAMINATION NOT SIGNIFICANTLY IMPACTING UPPER MIDDLE PRM GROUND WATER
 - REMOVAL OF PRODUCT RESIDUES NOT PRACTICABLE
 - HYDRAULIC CONTROL NOT NECESSARY DUE TO HIGH VISCOSITY OF PRODUCT
 - DISSOLVED PRODUCT CONSTITUENTS IN SHALLOW GROUND WATER HYDRAULICALLY CONTAINED AND NATURALLY ATTENUATED BY SURROUNDING WETLANDS

AOC 4 SWALE NORTH OF TANK FARM

- IN-SITU STABILIZATION TO PREVENT SEDIMENT TRANSPORT TO WETLANDS
- PASSIVE REMOVAL OF RECOVERABLE FREE PRODUCT (IF PRESENT)

AOC 5 PEPPER BUILDING AND ADJACENT AREAS

- PERMEABLE COVER TO PREVENT CONTACT TO PCB-IMPACTED SOILS
- PASSIVE REMOVAL OF RECOVERABLE FREE PRODUCT
- LIMITED HOT-SPOT REMOVAL, IF WARRANTED
 - RESIDUAL (NON-RECOVERABLE) PRODUCT CONTAMINATION NOT SIGNIFICANTLY IMPACTING UPPER MIDDLE PRM GROUND WATER
 - REMOVAL OF PRODUCT RESIDUES NOT PRACTICABLE
 - HYDRAULIC CONTROL NOT NECESSARY DUE TO HIGH VISCOSITY OF PRODUCT
 - DISSOLVED PRODUCT CONSTITUENTS IN SHALLOW GROUND WATER HYDRAULICALLY CONTAINED AND NATURALLY ATTENUATED BY WETLANDS NORTH OF RT 130

AOC 6 NORTHEAST CORNER OF GAVENTA POND

- INSTITUTIONAL CONTROLS
 - NO CONTAMINANTS FOUND IN SURFACE WATER
 - OVERALL RISK TO POND LIKELY TO BE INSIGNIFICANT
 - ANY REMEDY WOULD LIKELY REMOBILIZE CONTAMINATED SEDIMENT

NOT
DEPICTED

AOC 8 GROUND WATER AREAS NORTH OF RT 295 (TECHNICAL IMPRACTICABILITY ZONE)

- GROUND WATER RESTORATION NOT PRACTICABLE
 - CONTINUING SOURCES REMAIN (LAGOON RESIDUALS)
 - POTENTIAL PRESENCE OF DNAPL (KEY TI CRITERION)
- UPPER PRM NATURALLY CONTAINED AND ATTENUATED BY WETLANDS BIOFILTER
- INTRINSIC REMEDIATION (NATURAL ATTENUATION) OF UPPER MIDDLE PRM PLUME NEEDS TO BE DEMONSTRATED
- PUMPING WILL ONLY SPREAD PLUMES AWAY FROM SOURCE AREAS
 - PUMPING WILL SPREAD BROS PLUMES DOWNWARD INTO UPPER MIDDLE PRM AND LATERALLY AWAY FROM SOURCE AREAS
 - PUMPING WILL DRAW CHEMICAL LEAMAN PLUMES ONTO THE BROS SITE
- PUMPING MAY DEWATER WETLANDS
- USEPA ENDORSES TI
 - SEVERAL STUDIES OUTLINING LIMITATIONS OF PUMP AND TREAT
 - 1993 TI GUIDANCE
 - MAY 1996 FEDERAL REGISTER
- USE MODELING TO EVALUATE PLUME MOBILITY AND PUMPING VS NON-PUMPING CLEAN-UP TIME FRAMES
- EVALUATE BIOSPARGING OR OTHER PASSIVE TREATMENT ZONES AROUND SOURCE AREAS

AOC 9 GROUND WATER AREAS SOUTH OF RT 295 (NATURAL ATTENUATION ZONE)

- DEMONSTRATE INTRINSIC REMEDIATION (NATURAL ATTENUATION) OF GROUND WATER CONTAMINANTS IN UPPER MIDDLE PRM
 - EVALUATE GEOCHEMISTRY FOR PRESENCE OF ELECTRON ACCEPTORS (DO SO ₄ NO ₃ Fe(II))
 - HUGE MASS OF SOURCE MATERIALS (BROS LAGOON) ALREADY REMOVED-EXPECT PLUMES TO DECREASE IN STRENGTH OVER TIME
 - UTILIZE MODELING TO SIMULATE FUTURE REDUCTION IN PLUME SIZE/STRENGTH

AOC 10 WETLANDS BETWEEN RT 130 AND 295

- MODIFY WETLANDS TO ENHANCE USE AS NATURAL BIOFILTER
- ENHANCE ECOSYSTEM TO DEFEND AGAINST NRD CLAIMS
- LIMITED HOT-SPOT REMOVAL, IF WARRANTED
 - LITTLE TIMBER CREEK SWAMP HAS HIGH VALUE AS NATURAL BIOFILTER
 - INCREASE CHANNEL SINUOSITY TO INCREASE WATER RETENTION TIME
 - FOCUS ON REDUCING CONTAMINANT MOBILITY AND AVAILABILITY
 - CONTROL SURFACE WATER LEVELS TO CONTROL GROUND WATER DISCHARGE
 - ADDRESS WETLANDS SEDIMENTS EXCEEDING 10,000 PPM TPH

AOC 11 WETLANDS BETWEEN RT 130 AND CEDAR SWAMP RD

- FOCUS ON WETLANDS ENHANCEMENT VS WETLANDS REMEDIATION
 - PERFORM NET ENVIRONMENTAL BENEFIT ANALYSIS (WETLANDS REMEDIATION WILL INCREASE HARM)
 - FOCUS ON REDUCING CONTAMINANT MOBILITY AND AVAILABILITY
 - ENHANCE WETLANDS TO INCREASE WETLANDS VALUE

FIGURE 5.

**REMEDIAL APPROACH FOR
AREAS OF CONCERN
BRIDGEPORT RENTAL AND
OIL SERVICES
LOGAN TOWNSHIP, NEW JERSEY**

ROUX

TABLE 1. BROS SITE PRPs IDENTIFIED BY USEPA

President
International Business
Machines Corp.
One Orchard Road
Armonk, NY 10504

President
Polak Fruit Works
c/o P.F.W.- Division of
Hercules
33 Sprague Avenue
Middletown, NY 10190

President
International Flavors &
Fragrances, Inc.
521 West 57th Street
New York, NY 10019

President
Polaroid Corp.
549 Technology Square
Cambridge, MA 02139

President
Kaumagraph Corporation
14th and Poplar Streets
Box 388
Wilmington, DE

President
Rohm & Haas Company
5000 Richmond Street
Philadelphia, PA 19137

President
Minnesota Mining &
Manufacturing Co.
3M Center
St. Paul, MN 55101

President
Rollins Environmental
Services (DEL), Inc
One Rollins Plaza
P.O. Box 2349
Wilmington, DE 19899

President
Monsanto Co.
800 N. Lindberg Ave.
St. Louis, MO 63167

President
Rollins Environmental
Services (NJ), Inc.
Route 322 West
P.O. Box 221
Bridgeport, NJ 08014

President
Occidental Chemical Corp.
800 Connecticut Avenue
Norwalk, CT 06854

President
Smith/Kline & Beckman Co.
One Franklin Plaza
Philadelphia, PA 19101

President
Olin Corporation
120 Long Ridge Road
P. O. Box 1355
Stamford, CT 06904-1355

President
The Sun Oil Company
5 Penn Center Plaza
Philadelphia, PA 19103

TABLE 1. BROS SITE PRPs IDENTIFIED BY USEPA

President
A & A Waste Oil Company, Inc.
3635 Woodland Avenue
Baltimore, MD 21215

President
American Cyanamid Company
One Cyanamid Company
Wayne, NJ 07470

President
Betz Laboratories, Inc.
Somerton Road
Trevose, Pa 19047

President
Burroughs Wellcome Co.
3030 Cornwallis Rd
Research Triangle Park, NC 27709

President
CIBA-GEIGY Corporation
Ardsley, NY 10502-2699

President
Fischer Scientific
711 Forbes Avenue
Pittsburgh, PA 15219

President
Hoechst Celanese Corporation
Route 202-206 North
Somerville, NJ 08876

President
Jack Wolf Waste Oil Services
29 S. Bell Rd.
Bellmawr, NJ 08030

President
Mobil Chemical
Mobil Oil Corporation
150 East 42nd Street
N.Y., N.Y. 10017-5666
President

President
Alcan Aluminum Corporation
Box 6977
Cleveland, OH 44101-1977

President
Bechtel Power Corporation
P.O. Box 3965
San Francisco, CA 94119

President
Boyertown Packaging
315 East 2nd St.
Boyertown, PA 19512

President
Champion International
Corporation
One Champion Plaza
Stamford, CT 06921

President
Del Monte Foods, Inc.
c/o Nabisco Brands, Inc.
P.O. Box 1937
East Hanover, NJ 07936-1937

President
Formica Corporation
155 Route 46 West, CN-980
Wayne, NJ 07474-0980

President
ICI Americas, Inc.
New Murphy Road &
Concord Pike
Wilmington, DE 19803

President
Mid-Atlantic Refinery
Services, Inc.
2301 Pennsylvania Avenue
Deptford, NJ 08096

President
Owens Illinois
One Seagate
Toledo, OH 43666

President

TABLE 1. BROS SITE PRPs IDENTIFIED BY USEPA

Pennwalt Corporation
Pennwalt Building
Three Parkway
Philadelphia, PA 19102-1389

President
Reading Industries, Inc.
Box 126
Reading, PA 19603

President
Sartomar Company
A Subsidiary of Atlantic
Richfield Company
c/o V. Peter Wynne, Esq.
ARCO Chemicals
3801 Westchester Pike
Newtown Square, PA 19073

President
Texaco, Inc.
2000 Westchester Avenue
White Plains, NY 10650

President
Westinghouse Electric Corporation
Westinghouse Building
Gateway Center
Pittsburgh, PA 15222

Pittco-Prickett Industrial
Tank Cleaning Corp.
735 N. Hurffville Rd.
Deptford, NJ 08096

President
Rubberset Co.
Division of the Sherwin-
Williams Co.
P.O. Box 231, Rt. 413
Crisfield, Maryland 21817

President
Shell Oil Company
One Shell Plaza
P.O. Box 4320
Houston, TX 77210

President
Union Carbide Corporation
39 Old Ridgebury Road
Danbury, CT 06817-0001

President
Xerox Corporation
Joseph C. Wilson Center for
Technology
Webster, NY 14580

000001

TABLE 2. THE 80 SETTLING DEFENDANTS IN
ROLLINS v. U.S./U.S. v. ALLIED SIGNAL

3M

Acme Markets, Inc.
Air Products and Chemicals, Inc.
Alcan Aluminum Corp.
AlliedSignal Inc.
American Premier Underwriters, Inc. (formerly known as The Penn Central Corporation)
AT&T Corp. (formerly American Telephone and Telegraph Company)
AT&T Technologies, Inc.
Atlantic City Electric
Atlantic Energy, Inc.
Atlantic Richfield Company (ARCO)
BASF
Bechtel Power Corporation
Bell Telephone Laboratories, Incorporated
Bend/Sears Inc.
Bridgestone/Firestone, Inc.
BP Exploration & Oil Inc.
Buckeye Pipe Line Company
Campbell Soup Company
Champion International Corporation (successor by merger to St. Regis Corp.)
Chemical Leaman Tank Lines, Inc.
Chevron Chemical Company
Chevron U.S.A. Inc.
Ciba-Geigy Corporation
Crown Cork & Seal Company, Inc.
Cytex Industries Inc. (on behalf of American Cyanamid Company)
Del Monte Foods
Delaware Electric Cooperative, Inc.
Dole Food Company, Inc.
Dresser Industries, Inc.
DuPont Company
EA Industries, Inc. (formerly known as Electronic Associates, Inc.)
Easton Utilities Commission
Elf Atochem North America, Inc. (on behalf of itself, Atochem, Polyrez Company, and Pennwalt Corporation)
Eschem, Inc. (formerly known as Leksi, Inc. and Sartomer Resins)
Essex Chemical Corporation (and its predecessors Minerec Corporation and Essex Industrial Chemical, Inc., Paulsboro Chemical Industries Inc., and Dixon Chemical Industries, Inc.)
Exxon Company, U.S.A., a division of Exxon Corporation
F.C. Haab Co. Inc.
Formica Corporation
Glaxo Wellcome Inc. (formerly Burroughs Wellcome Co.)
General Electric Company
General Motors Corporation
Hargro Flexible Packaging Corp. (as successor to Boyertown Packaging Company)

TABLE 2. THE 80 SETTLING DEFENDANTS IN
ROLLINS v. U.S./U.S. v. ALLIED SIGNAL

Hercules Incorporated
Hoechst Celanese Corporation
Hoffmann-La Roche Inc.
Hoover Universal, Inc.
IBM Corporation
International Flavors & Fragrances Inc.
Interstate Storage and Pipeline Corporation
Jefferson Smurfit Corporation (U.S.) (formerly known as Container Corporation of America)
Johnson Controls, Inc.
Kimberly-Clark Corporation (formerly Scott Paper Company)
Lucent Technologies Inc.
Mobil Oil Corporation
Monsanto Company
New Jersey Natural Gas Company
O. Ames Co.
Occidental Chemical Co.
Olin Corporation
Olin Microelectronic Chemicals, Inc.
Owens Corning
Owens-Illinois, Inc.
PECO Energy Company
Penik Corporation (a former subsidiary of CPC International, Inc.)
Phillips Technologies Airpax Protector Group
Polaroid Corporation
Rohm and Haas Company
Rollins Environmental Services (NJ) Inc.
Rustgers-Nease Corporation
Sequa Corporation (as successor to General Printing Ink)
Shell Chemical Company
Shell Oil Company
Shell Oil Products Company
SmithKline Beecham Corporation
State of Delaware
Sun Company, Inc. (R&M) (formerly Sun Refining and Marketing Co.)
Texaco Inc.
Texaco Refining & Marketing Inc.
The Boeing Company
The Dow Chemical Company
The Sherwin-Williams Company
Union Carbide Corporation (for itself and Amchem Products Inc.)
University of Delaware
Western Electric Company, Incorporated
Westinghouse Electric Corporation
Xerox Corporation
Zeneca Inc. (formerly known as ICI Americas Inc.)

APPENDIX A – DOCUMENTS REVIEWED

A&A-1. Response to requests for information on allegations that A&A supplied waste oil to BROS, Inc. May 3, 1982.

A&A-2. Letter to Black & Decker, Inc. from A & A Waste Oil Company, June 18, 1982.

A&A-3. Handwritten notes showing log of A&A customers noting Black & Decker “shows only waste oil on all shipments”. Undated

Berk-1. Oral Deposition of Jerome Berk. June 28, 1993.

Black & Decker-1. The Black & Decker Corporation’s Response to Request for Supplemental Information in the BROS Settlement Process. April 27, 1993.

Black & Decker-2. Interrogatory Responses for BROS Site. Provided by Warner & Stackpole October, 1997.

Black & Decker-3. Environmental Site Assessment—Waste Handling Issues. Prepared for Black & Decker by Lion Technology, Inc., Lafayette, New Jersey. December 1984.

Black & Decker-4. Letter of response to Liberty Mutual regarding Black & Decker’s involvement in the BROS Settlement Process. Prepared by Alexander & Alexander, Baltimore, Maryland. October 7, 1994.

Borelli-1. Oral Deposition of Mark J. Borrelli in USA v. Allied. June 15, 1993.

Chamberlain-1. Deposition Summary of David H. Chamberlain in the Matter of: Liberty Mutual Insurance Company v. The Black & Decker Corporation, Black & Decker Inc., EMHART Corporation [and] EMHART Industries Inc. October 24, 1997.

De Cola-1. Response of Armen De Cola to request for information regarding BROS Superfund Site, Logan Twp., New Jersey, under CERCLA & ECRA, April 4, 1988. And Oral Depositions in USA vs. Bridgeport Rental and Oil Services, Inc., November 26, 1980; Oral Deposition, Petition of the BROS Site PRP Group, May 9 –10, 1991.

EPA-1. Record of Decision. Remedial Alternative Selection for Bridgeport Rental and Oil Services (BROS), Inc. Logan Township, New Jersey. December 31, 1984.

EPA-2 Feasibility Study of Remedial Alternatives for BROS Site—NUS Corp. July 1984. Remedial Investigation Report for BROS Site—NUS Corp. July 1984. Remedial Investigation Database for BROS Site—NUS Corp. July 1984. Record of Decision. December 31, 1984.

APPENDIX A – DOCUMENTS REVIEWED (Continued)

EPA-3. Summary of the Phase Two Remedial Investigation (RI) Work Performed to Date at Bridgeport Rental and Oil Services, Logan Township, New Jersey. Prepared by Malcolm Pirnie, Inc., New York, and CH2M Hill, Philadelphia, Pennsylvania. March 1996.

ERI-1. Aerial Photographic Site Analysis, Bridgeport rental and il Services, Bridgeport, New Jersey. Environmental Research, Inc. September, 1993.

Goldstein-1. Deposition of Howard J. Goldstein in the Matter of: Liberty Mutual Insurance Company v. The Black & Decker Corporation, Black & Decker Inc., Black & Decker (U.S. Inc., EMHART Corporation [and] EMHART Industries Inc.). October 17, 1997.

Hartung-1. Deposition of Harold A. Hartung in the Matter of: Liberty Mutual Insurance Company v. The Black & Decker Corporation, Black & Decker Inc., Black & Decker (U.S. Inc., EMHART Corporation [and] EMHART Industries Inc.). October 17, 1997.

Hartung-2. Oral Deposition of Harold A. Hartung in the Matter of: Rollins Environmental Services (NJ) Inc., et al. vs. the United States of America et al.; The United States of America vs. Allied-Signal, Inc., et al. June 11, 1993.

MD-1. Statement of the Case, Findings of Facts, Conclusions of Law and Recommendation in the Matter of A&A Waste Oil Company, Inc., 1982.

MD-2. State of Maryland Office of Environmental Programs Report of Observations at the BROS Site. Laboratory results included. July 16, 1982.

MD-3. Black & Decker tanks and A&A truck samples at Delight Quarry, July 13, 1982 and Black & Decker Sample Results, July 20, 1982.

MD-4. Personal Communication with Ms. Emily Troyer, Maryland Department of Environment re: waste manifest search. January 12, 1998.

MD-5. Maryland Department of Health memorandum to the record, Division of Solid Waste EH:SE:SW. January 3, 1978.

NJAPC-1. Investigation Report of SSC Corporation plant, Logan Twp., Bridgeport. November 14, 1967.

NJDEP-1. Memorandum received from the New Jersey Department of Environmental Protection from BROS, Inc. regarding action line complaint of air pollution. August 2, 1971.

APPENDIX A – DOCUMENTS REVIEWED (Concluded)

NJDEP-2. New Jersey Department of Environmental Protection BROS Site Observations. September 18, 1979.

NJDEP-3. Letter from Ms. Norine Binder, NJ Bureau of Advisement and Manifest in response to request for information. February 3, 1998

NJDLPS-1. Letter from Mr. Du-Can Chan NJ Division of Law in response to request for Cost Recovery Imaging System search. March 11, 1998.

Phelps-1. Deposition of Homer L. Phelps in petition to take de bene esse deposition of H. Laverne Phelps, William R. Grisby and Archie A. McGinnis. BROS Superfund Site. January 22, 1992.

Rascoma-1. Oral Deposition of Thomas Rascoma in the Matter of: Rollins Environmental Services (NJ) Inc., et al. vs. the United States of America et al.; The United States of America vs. Allied-Signal, Inc., et al. March 9, 1993.

Reis-1. Oral Deposition of Joseph Reis in the Matter of: Rollins Environmental Services (NJ) Inc., et al. vs. the United States of America et al.; The United States of America vs. Allied-Signal, Inc., et al. May 1, 1993.

Rollins-1. Memorandum to file prepared by R.C. Gregory advising of a leak on Tank #2 at the Bridgeport Tank Farm. June 28, 1971.

Rollins-2. Memorandum to EPA from Rollins Environmental Services. January 7, 1974.

Rollins-3. Oil and Hazardous Materials Spill Report. September 17, 1976.

Segal-1. Oral Deposition of Morton Segal in the Matter of: Rollins Environmental Services (NJ) Inc., et al. vs. the United States of America et al.; The United States of America vs. Allied-Signal, Inc., et al. March 4, 1993.

Smith-1. Oral Deposition of Richard Smith in the Matter of: Rollins Environmental Services (NJ) Inc., et al. vs. the United States of America et al.; The United States of America vs. Allied-Signal, Inc., et al. March 2, 1993.

Spritz-1. Oral Deposition of Louis J. Spritz, Jr. in the Matter of: Rollins Environmental Services (NJ) Inc., et al. vs. the United States of America et al.; The United States of America vs. Allied-Signal, Inc., et al. July 27, 1993.

Roux-1. Proposal for Phase 2 RI/FS for the BROS site, Bridgeport, New Jersey. Roux Associates. August, 1996

Appendix B - Professional Profile of the Author

FRANK S. ANASTASI, PG
118 South Adams Street
Rockville, MD 20850
(301) 309-6693

Current Positions

Principal, Independent Consulting Practice (SCA Associates). Perform technical and management consulting assignments, including technical evaluation, analysis and expert witness services in support of environmental litigation, including Superfund site remediation liability. Provide community relations/public involvement support for hazardous waste projects. Consult on business development and proposal activity.

Board of Directors Member, and Technical Practices Committee Chairman, Hazardous Waste Action Coalition. Advocate environmental industry positions, promote advancement of the state-of-the-practice and enhance business opportunities. Facilitate interactions of federal agency representatives, policy makers and industry leaders on technical and business-related matters. Position enables in-depth, up-to-the-minute understanding of the status and direction of forces that are rapidly changing private-sector and Federal environmental markets.

Recent Previous Experience

Manager, Environmental Programs Business Unit. Developed Strategic Business Unit Plan for this new initiative. Planned and implemented marketing efforts focused on senior executives of major government contractors. Identified target opportunities, potential clients, and marketed support services. Recruited experienced consultants with in-depth customer knowledge of major DOD and DOE environmental contracts. Analyzed federal policies and programs. Tracked federal environmental business opportunities. Developed procedures and maintained databases of federal program contracts. Integrated procurement-reform initiatives into traditional business processes (e.g., electronic commerce, performance-based contracting).

Group Leader, Assessment and Remediation. Led an effective and profitable team of multi-disciplinary professionals on environmental assessment and compliance programs, base-closure and installation-restoration projects, and Superfund RI/FS/RODs and RDs. Provided line management, leadership and mentoring for 17-member group of engineers, geologists, chemists, toxicologists, and support staff. As a founding member of the regional federal-programs office, played a key role in recruiting, training and coaching a staff that grew to nearly 100 people.